EPAct ’05 + Energy Savings Performance Contracts (ESPCs) in Facilities of the U.S. Federal Government

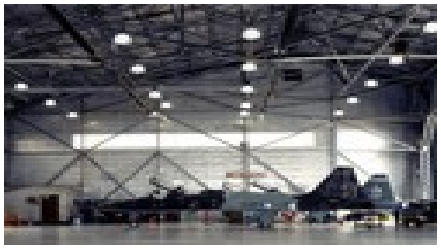
Beth Shearer

Why Energy Management in the Public Sector?

- Government is the largest energy user
- Lead by example
- Save energy and money
- Market transformation for energy efficient, renewable energy, and water-conserving products
- Technology demonstration and deployment

Federal Buildings

- Office Buildings
- Laboratories
- Housing
- Parks and historic sites
- High bay applications
- Post Offices
- Court Houses
- Hospitals
- Warehouses
- Space launch buildings



The U.S. Federal approach to energy management

- Set goals
- Plan and implement projects
- Measure performance
- Report progress (Annual report to Congress, EO 13123 Report to the President)
- Reward Federal leadership

Energy Policy Act of 2005

- Energy reduction goals: reduce building energy use by 2% per fiscal year from 2006 through 2015
- FY2003 will be the new baseline year
- Only 2 building categories: standard and exempt

- Agencies may retain all appropriated funds resulting from energy and water savings and must be used for other conservation efforts

- Agencies will install advanced meters in all buildings which provide hourly and daily electricity consumption data; DOE required to develop guidelines (DOD draft)

- Agencies are required to purchase Energy Star or FEMP designated products

Energy Policy Act of 2005 (Cont.)

- Newly constructed buildings or those undergoing major renovation must perform 30% more efficiently than ASHRAE or IEEC requirements
- Energy Savings Performance Contracts (ESPC) reauthorized through 2016 with no limitations
- Agencies will be required to obtain renewable electricity
  - 3% from 2007 through 2009
  - 5% from 2010 through 2012
  - 7.5% from 2013 and after
- Renewable energy generated on site will receive double credit

Energy Policy Act of 2005 (Cont.)

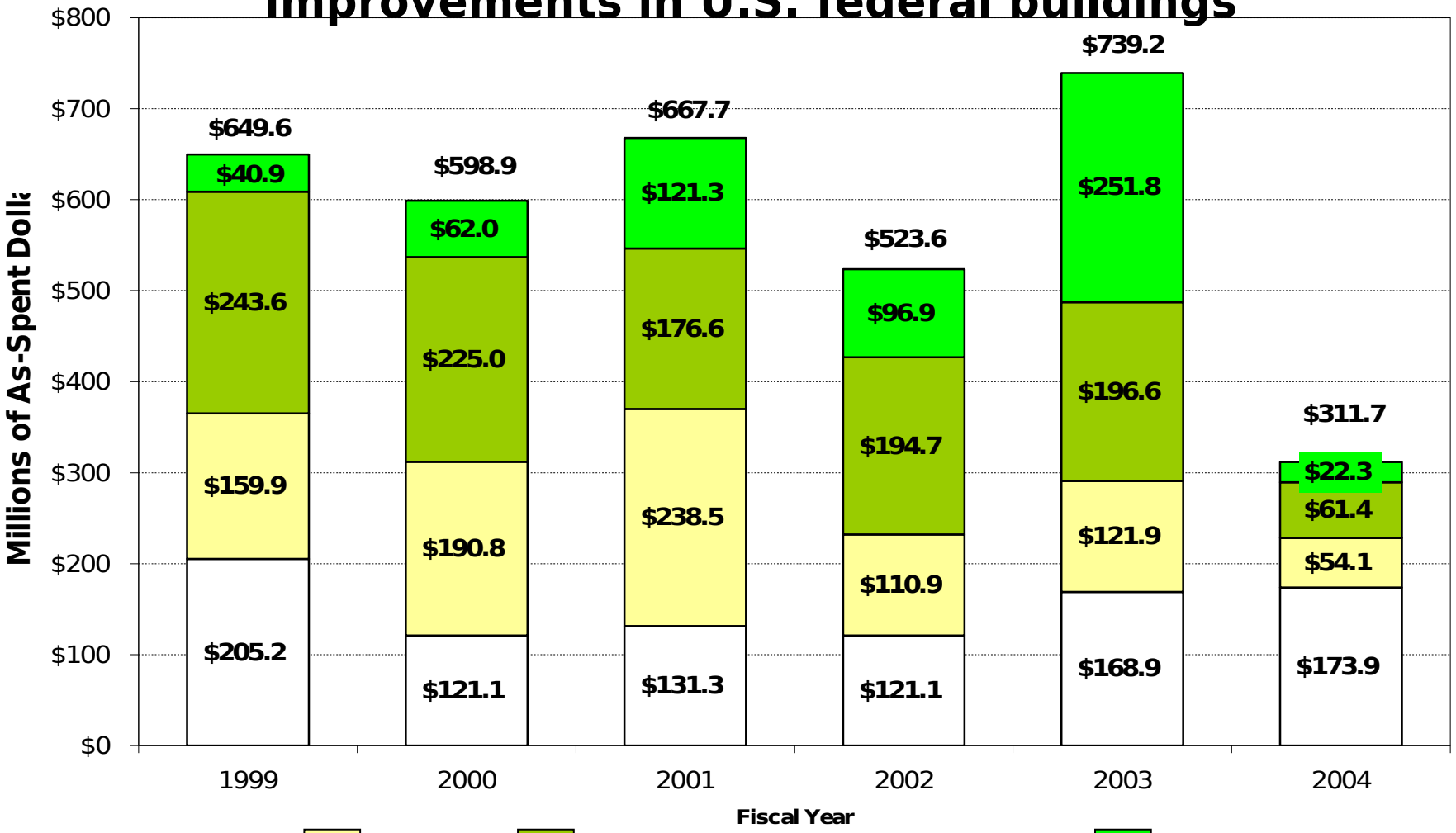
- Newly constructed buildings or those undergoing major renovation must perform 30% more efficiently than ASHRAE or IEEC requirements
- Energy Savings Performance Contracts (ESPC) reauthorized through 2016 with no limitations
- Agencies will be required to obtain renewable electricity
  - 3% from 2007 through 2009
  - 5% from 2010 through 2012
  - 7.5% from 2013 and after
- Renewable energy generated on site will receive double credit

ESPC’s: Lessons Learned

Motivation for the use of ESPC at U.S. federal sites

- Meet energy conservation goals
- Fund needed energy infrastructure improvements
- Dwindling availability of appropriated funding to do the above

Alternative financing funds 74% of efficiency improvements in U.S. federal buildings



ESPC History

1986

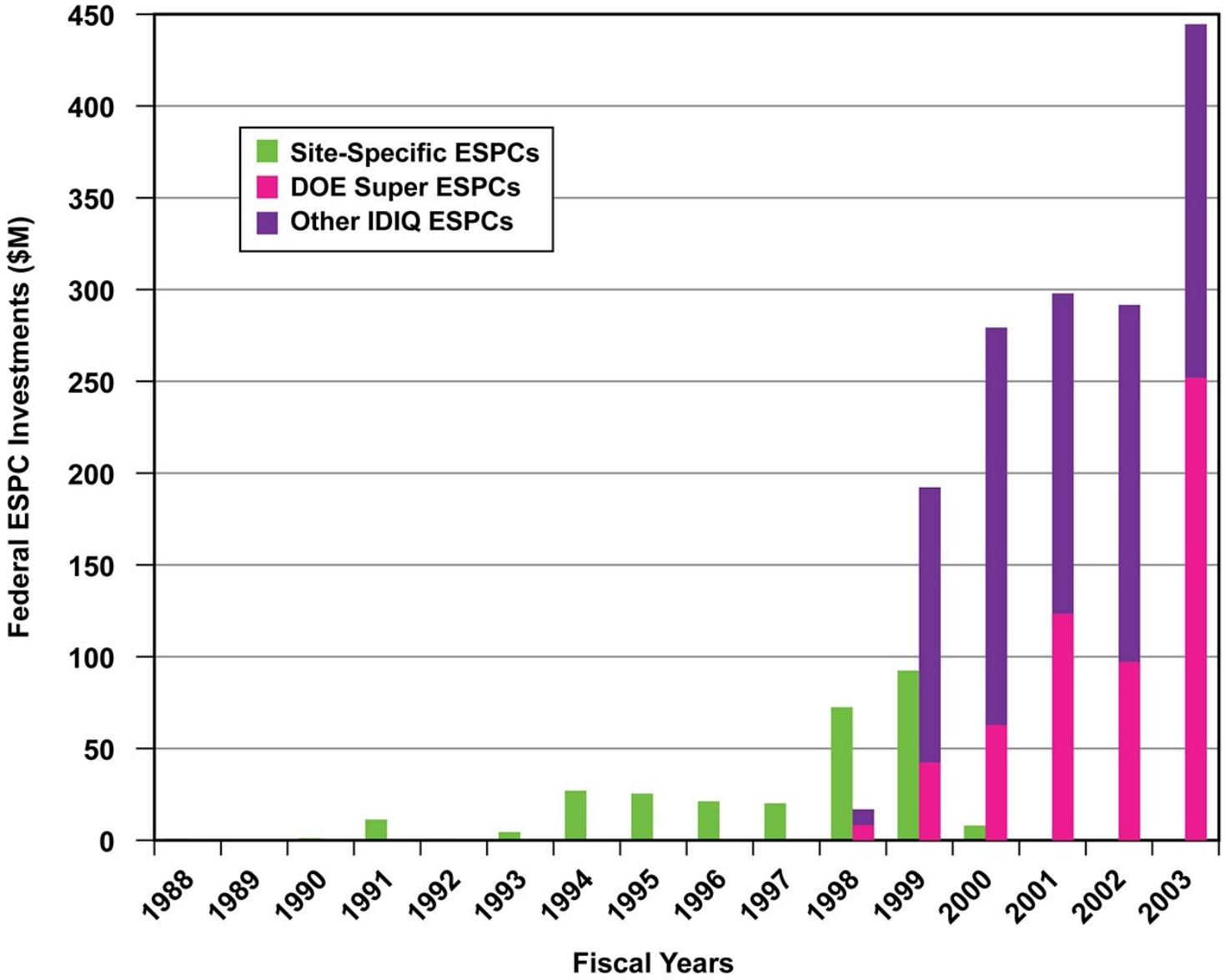
- Authority for ESPC established but wasn't widely used
  - Adapted model solicitations for a site-specific project
  - Government-identified projects
  - Price competitions for Energy Service Company (ESCO) selection

1998

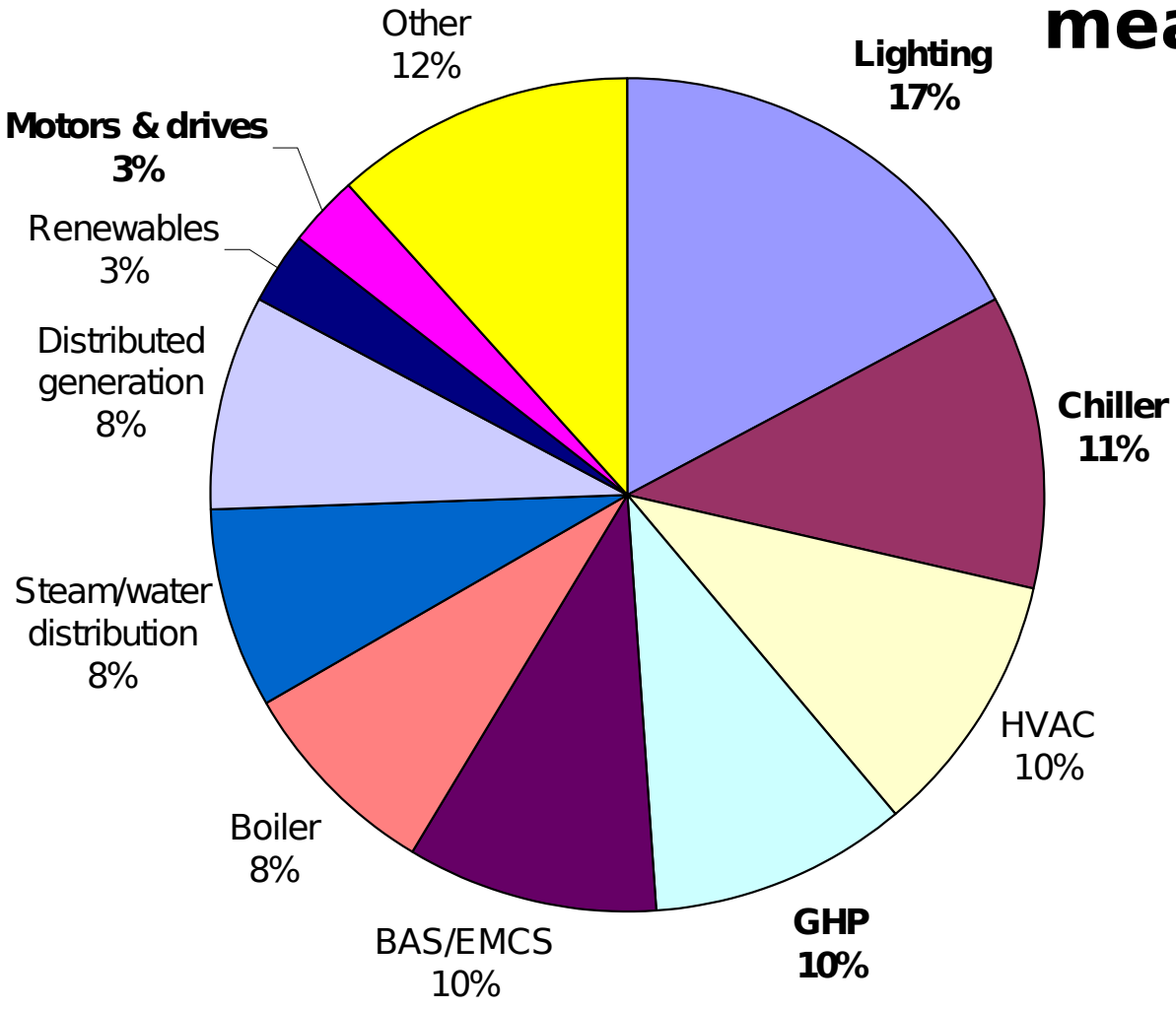
- Super ESPC developed: indefinite-delivery, indefinite-quantity (IDIQ) contracts
  - Streamlined procurement
  - Reduced transaction costs
  - Standardized terms and conditions
  - Required financial schedules to summarize deal

ESPC Activity

Increased dramatically after IDIQ ESPCs were established

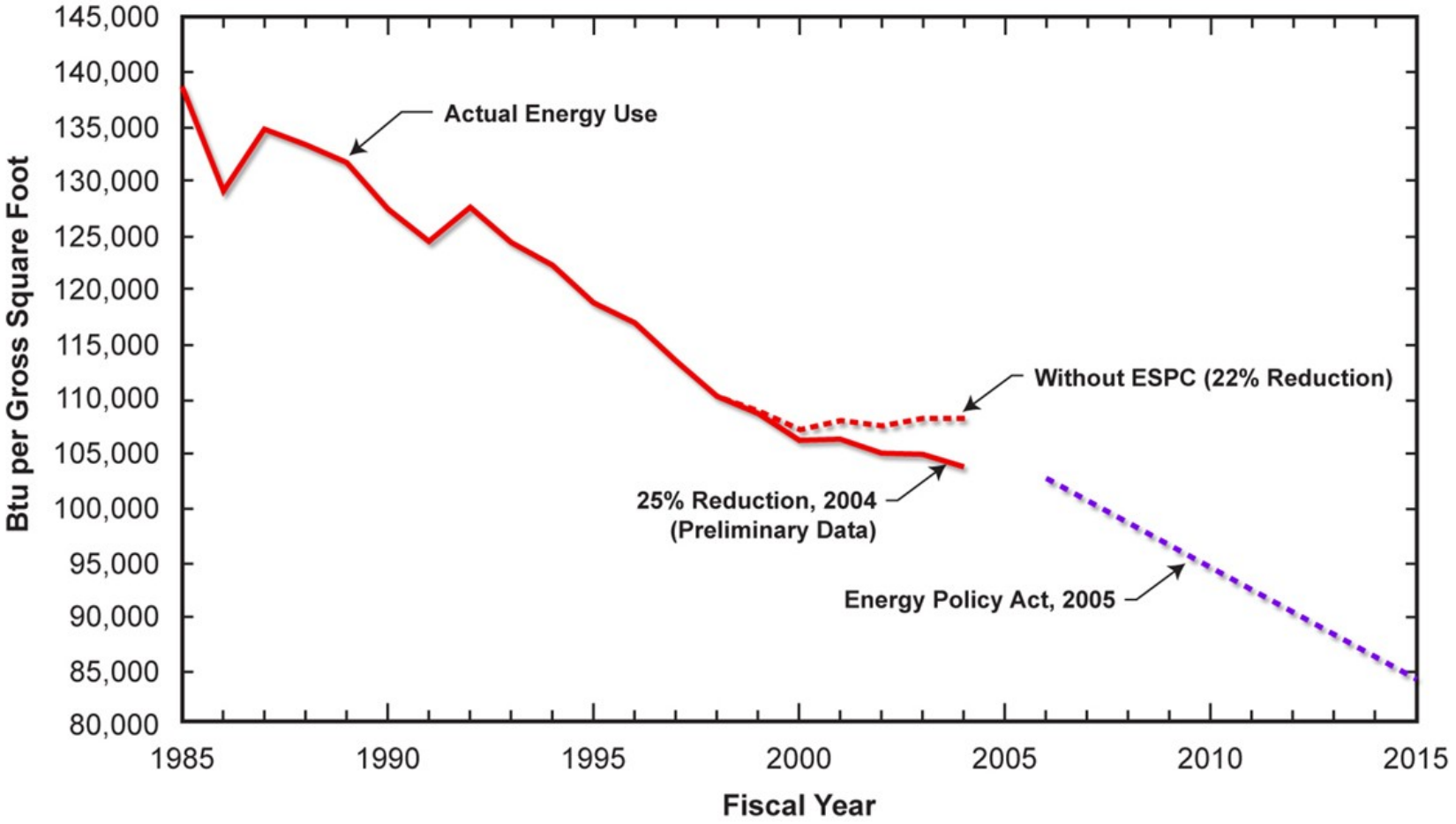


ESPCs fund a wide variety of conservation measures



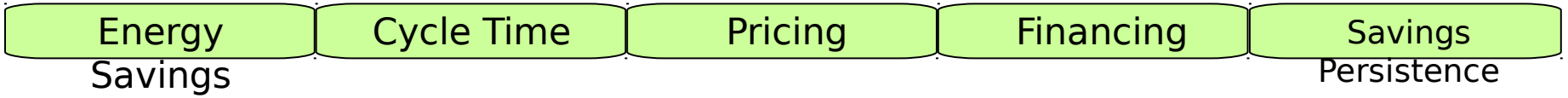
Energy Savings

ESPCs have been instrumental in meeting federal energy goals



ORNL 03-02339B/abh

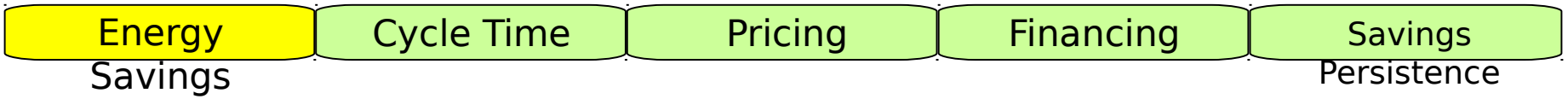
Measures of ESPC Qual



All ESPC projects should have:

- Significant energy savings
- Fast cycle time
- Comparable pricing — Pricing of energy-conservation measures (ECMs) and performance-period services in ESPCs should be comparable to prices in appropriations-funded projects
- Competitive financing
- Savings that persist throughout the life of the contract (and beyond)

Energy Savings in ESP

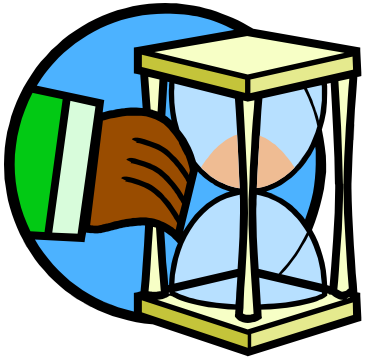


- Saving energy is the primary motivation for the ESPC program
- Ideally, energy conservation would be the sole motive for agency use of ESPC
- In reality, there is a huge backlog of deferred maintenance, and appropriations fall short
  - Agencies use ESPCs to solve their problems **AND** save energy
- Current average is about 8,000 Btu saved (8,440 kJ) per dollar invested

Cycle Time

Energy Savings	Cycle Time	Pricing	Financing	Savings Persistence

- ESPC projects should be implemented in a timely fashion for projects to be cost effective
- Delays increase costs, which are ultimately borne by the government
- Inefficient equipment remains in service longer than it has to, resulting in lost energy and cost savings
- Current average is about 18 months from kickoff to award
- Project facilitators are a big factor in keeping cycle time to a minimum

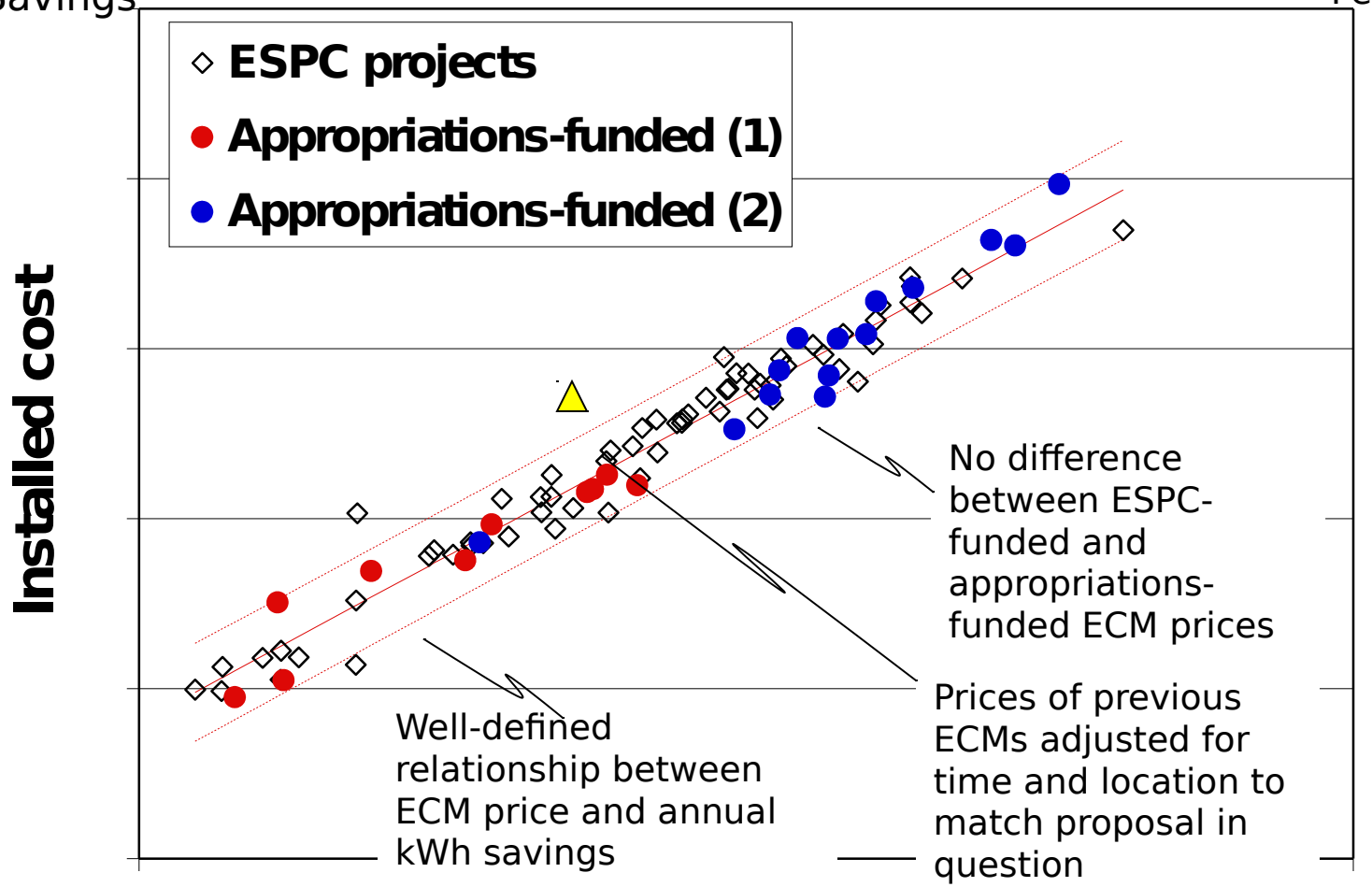


Pricing of ECMs and Performance-

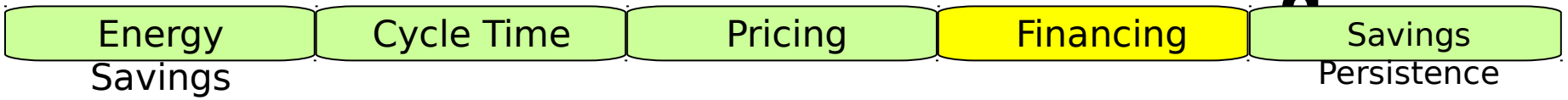
- Whether funded with ESPC or appropriations, the underlying prices of ECMs and performance-period services should be comparable
- FEMP analyzes prices in order to
  - Provide negotiating tools for federal sites to ensure that offered prices are consistent with past pricing
  - Ensure that pricing in ESPC is comparable to pricing in appropriations-funded process

Example: Prices of lighting efficiency upgrades

Energy Savings | Cycle Time | Pricing | Market | Savings Persistence


ESPC projects
Appropriations-funded (1)
Appropriations-funded (2)
Installed cost
No difference between ESPC-funded and appropriations-funded ECM prices
Prices of previous ECMs adjusted for time and location to match proposal in question
Well-defined relationship between ECM price and annual kWh savings
Annual kWh Savings

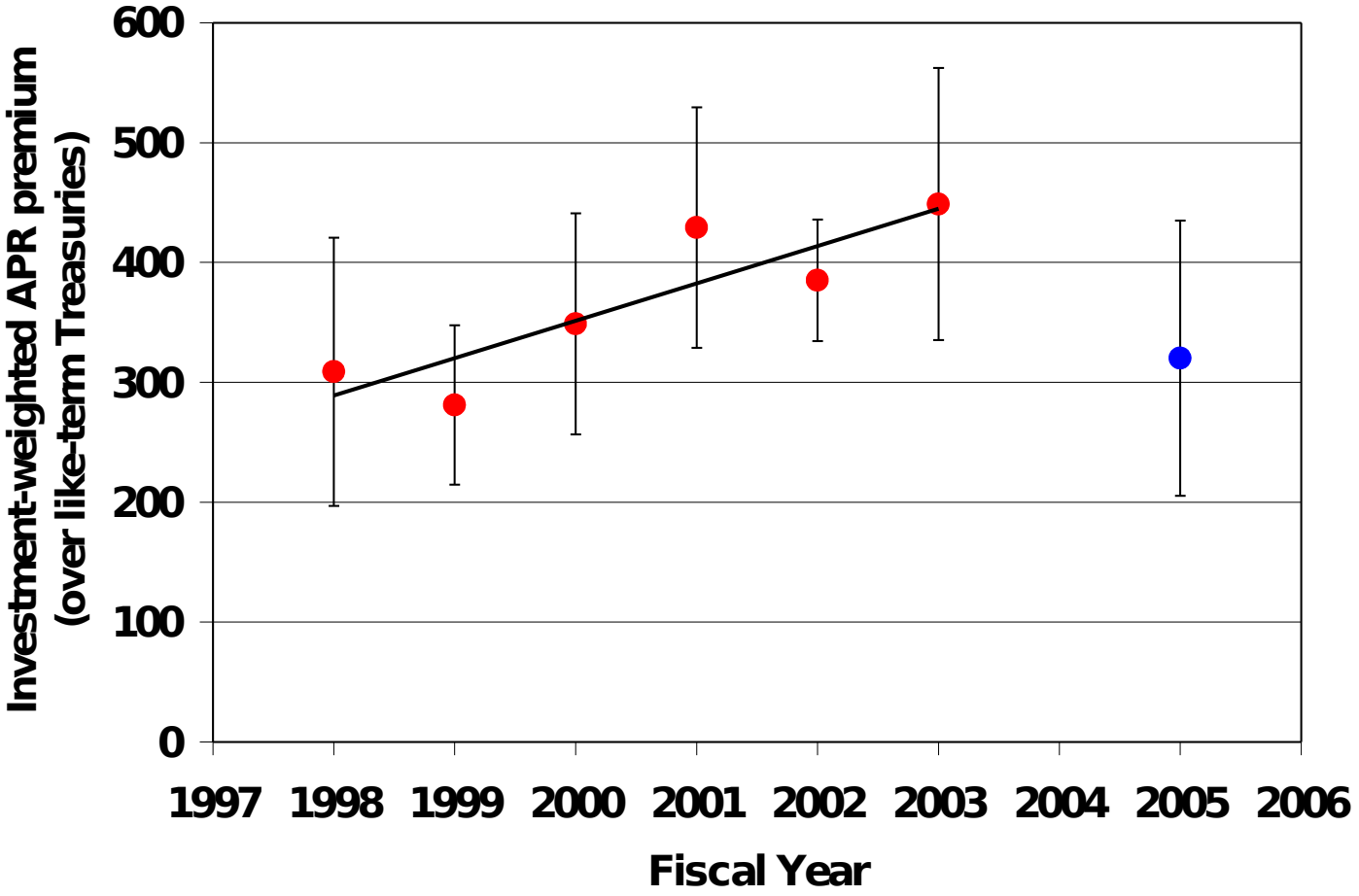
Financing



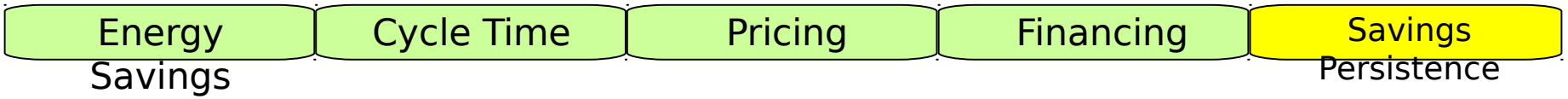
- ESPC projects should have competitive financing if projects are to be cost-effective
- FEMP ESPC team observed that
  - Agencies did not understand financing
  - ESCOs rarely competed financing offers
  - Transparency to the government was lacking
- ESCOs are now required to obtain multiple offers for financing
  - Competition has driven down finance costs

Effect of competition

Energy Savings | Cycle Time | Pricing | Financing | Savings Persistence



Persistence of savings



- For projects to be cost-effective, savings must persist over the life of the contract
- ESCOs guarantee the savings, and produce annual measurement and verification (M&V) reports to prove that savings are achieved
- FEMP's adaptation of the *International Performance Measurement and Verification Protocol* is used in all projects

How best quality is achieved

- Training for federal agencies
  - Introductory and advanced workshops familiarize customers with ESPC process
- Ongoing analysis of program data to target areas for improvement
- Use of project facilitators
  - A corps of experienced, highly trained individuals assist in project setup
- Contract centers